

# Minnesota Sushi Study

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# What is EHS–Net?

- ▶ Environmental Health Specialists Network (2000)
- ▶ Collaborative forum of environmental health specialists whose mission is to improve environmental health practice.
- ▶ EHS–Net works towards identifying and preventing environmental factors contributing to foodborne and waterborne illness outbreaks.
- ▶ The Minnesota Department of Health (MDH) is one of the EHS–Net partners.
- ▶ MN EHS–Net Food: Kirk Smith, David Reimann, and Nicole Kuktavy.

# Minnesota Sushi Study

- ▶ In addition to multi-state studies EHS-Net studies, there are site-specific studies.



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# Minnesota Sushi Study Background

- ▶ Number of restaurants serving sushi and raw fish menu items has been increasing in Minnesota.
- ▶ Inspector education/training.
  - Practices and protocols of serving raw fish are complex.
- ▶ Inconsistencies on supplier invoices and parasite destruction letters.





# Minnesota Sushi Study Objective

- ▶ To collect descriptive data on restaurant workers' practices and policies concerning the service of raw fish.

# Minnesota Sushi Study Objective (cont.)

- ▶ Specifically, data were collected on:
  - How were parasitic destruction parameters being met for fish served raw (by supplier or in restaurant)?
  - If provided by suppliers, were parasitic destruction letters “adequate?”
  - Did fish species/common names listed on menu match supplier invoices of products purchased?
  - What procedures/practices were in place to ensure food safety processes were being met for both fish and rice?
  - What procedures were in place for rice (acidified using HACCP or non-acidified using Time as Public Health Control (TPHC))?
  - What processes are used for storage, preparation, and service of raw fish, including hand washing procedures, glove use, review of logs/records, and equipment?

# Minnesota Sushi Study Definition

- ▶ The study population included all restaurants within Minnesota that serve raw fish (finfish) in sushi or sashimi form.
  - Sushi: Rice with raw fish.
  - Sashimi: Thin slices of raw fish (no rice).
- ▶ This study did not include restaurants that served only undercooked or partially cooked fish items such as seared tuna or salmon or those restaurants serving sushi with cooked fish.

# Minnesota Sushi Study

- ▶ Only restaurants that meet the EHS–Net definition of a restaurant were included in this study.
- ▶ A restaurant is defined as an establishment that prepares and serves food or beverages to customers but is not an institution, food cart, mobile food unit, temporary food stand, supermarket, restaurant in a supermarket, or caterer.



# Minnesota Sushi Study

- ▶ List of restaurants fitting study definition was compiled.
  - Approximately 125 establishments.
- ▶ Telephone recruitment.
- ▶ Restaurants excluded if non-English speaking manager.
- ▶ Recruitment goal: 40 restaurants.

# Minnesota Sushi Study

- ▶ The following data collection instruments were developed by Minnesota EHS–Net members:
  - Restaurant Manager Interview (15 minutes)
  - Observation Form (30 minutes)
    - In-house Parasitic Destruction Form
  - Invoice/Letter of Parasite Destruction Review Form (30 minutes)

# Letter of Guarantee/Invoice Review

Supplier:\_\_\_\_\_

- ▶ Letter of guarantee available? **Y or N**
- ▶ If no-why? Not on-site/ Establishment never received/NA  
Other:\_\_\_\_\_

- ▶ Parasitic Destruction conducted by Supplier? **Y N NO**  
(If no-fill out separate questionnaire)

- ▶ Letter Adequate? **Y or N**

- ▶ If no-what's missing? \_\_\_\_\_

- ▶ Any species that don't match menu name? **Y or N**  
Which?\_\_\_\_\_

- ▶ Reason:\_\_\_\_\_

- ▶ List all fish (to be served raw) received from supplier:

- 1.
- 2.
- 3.
- 4.
- 5.

# What is “Adequate?”

- ▶ Below is the information which must be provided in the *parasite destruction letter* from the supplier. All are required to be deemed “adequate:”

1. Name and address of the supplier.
2. All species of fish that are frozen for parasite destruction and provided to the establishment.
3. Exact temperature to which the fish specified in (2) above are frozen.
4. The length of time for which the fish specified in (2) above are frozen at the temperature specified in (3) above.

# “Inadequate” Letter

To Whom It May concern:

Please be advised that XX has implemented a HACCP-based seafood safety program that is in full compliance with the FDA's HACCP Rule, 21 CFR Part 123. Our procurement standards, in-house production activities, and delivery systems have been modified to meet the demands of this law.

Regarding our frozen seafood policy, XX procures and receives only Hard Frozen product, which is then held and stored at a temperature of  $\leq -10^{\circ}\text{F}$  until shipping.

Please be advised that XX will only procure and store seafood from those companies that are also in compliance with HACCP. In addition, XX is also a certified USDC sanitarily inspected and approved type #1 facility.

**\* Missing Length of Time and Species of Fish**

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# “Adequate” Letter

January 01, 2013

“This letter is our guarantee that all seafood that XXX provides to your company has been produced and stored in a facility which is in compliance with the 21 CFR Part 123 requiring all seafood processors, distributors and storage facilities to comply with US Food and Drug Administration’s guidelines for HACCP and in accordance with current Good Manufacturing Practices and Sanitation Standard Operating Procedures.

Further, this letter certified that the seafood item supplied by XXX to your company (**which is Ultra Low Temperature Frozen Tuna Saku Block**) has been maintained at **–4°F or lower for a minimum of 7 days prior to distribution from our facilities.**”

Sincerely,  
XXX

(Company Address)

# Minnesota Sushi Study

## ▶ Completed:

- Data collected from April 2013 through December 2013.
  - Data collected in 40 restaurants.

## ▶ Next Steps:

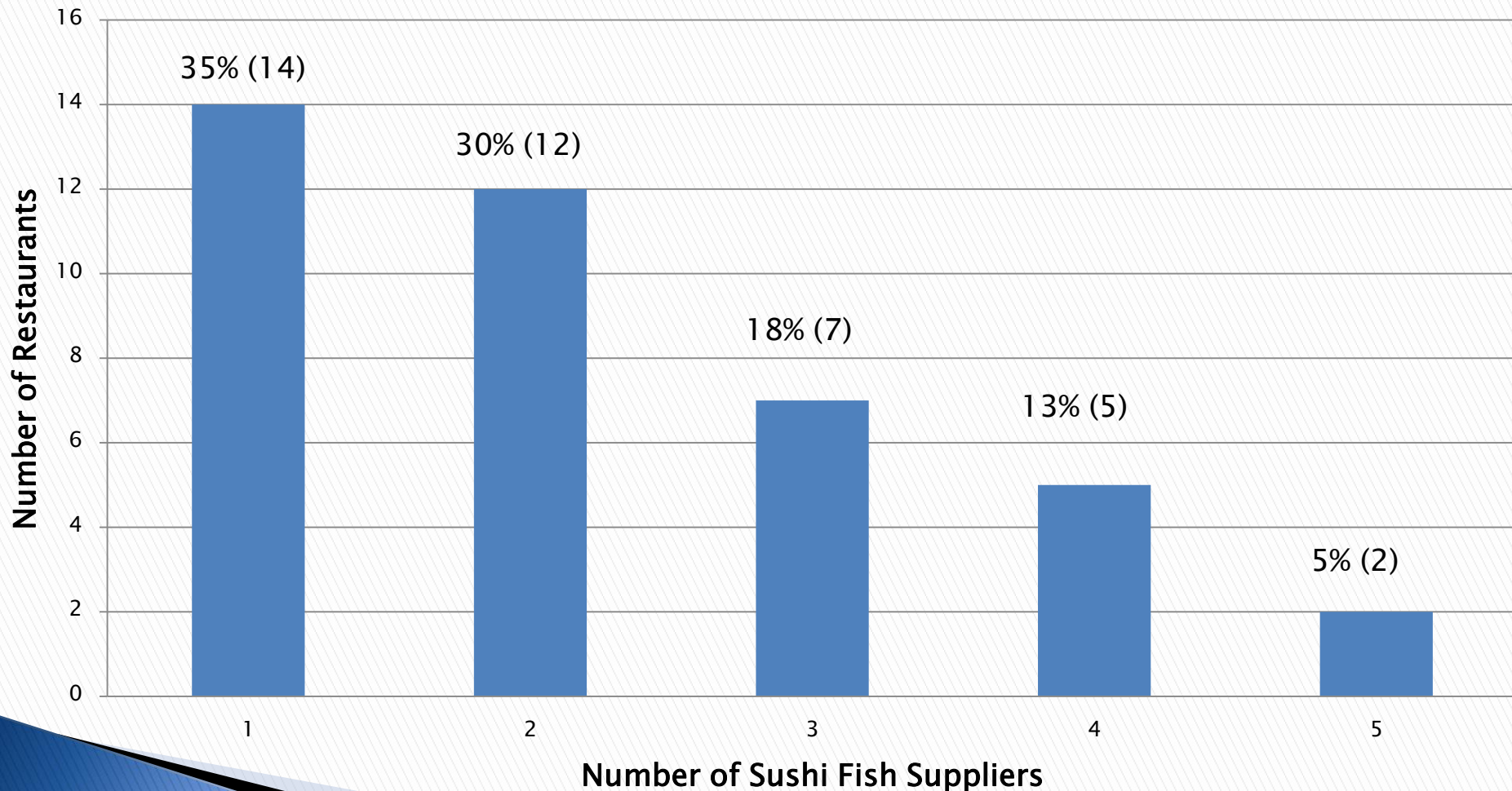
- Currently working on analysis.
- Disseminate results to all inspectors.
- Follow-up with fish suppliers.



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# Preliminary Findings: Sushi Fish Suppliers

Number of Sushi Fish Suppliers per Restaurant (N=40)



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# Preliminary Findings: Sushi Fish Suppliers

## ▶ Who supplies your sushi fish?

- 17 different suppliers reported:

Sushi Fish Supplier	% of Establishments
Supplier A	70% (28)
Supplier B	30% (12)
Supplier C	20% (8)
Supplier D	18% (7)
Supplier E	18% (7)

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# Preliminary Findings: Parasite Destruction

Is raw fish frozen on-site for parasite destruction or is the fish frozen by the supplier?

- ▶ Only one restaurant was freezing all of their sushi fish on-site.
  - More complex process.
- ▶ Twenty-seven percent (11) of restaurants reported freezing only some of their sushi fish on-site.
  - Mainly farm-raised salmon.
- ▶ The majority of restaurants (97.5%, 39) relied on parasite destruction letters from suppliers.



# Preliminary Findings: Supplier Letters

For those restaurants that relied on parasite destruction letters from suppliers (N=39):

- ▶ 61% (24) of restaurants were missing at least one of their parasite destruction letters from suppliers.
- ▶ 41% (16) of restaurants were missing all of their parasite destruction letters from suppliers.
- ▶ Of the 52 letters available:
  - Seven were excluded because the fish was farm-raised.
  - Of the remaining 45 letters, only 9% (4) were considered “adequate.”

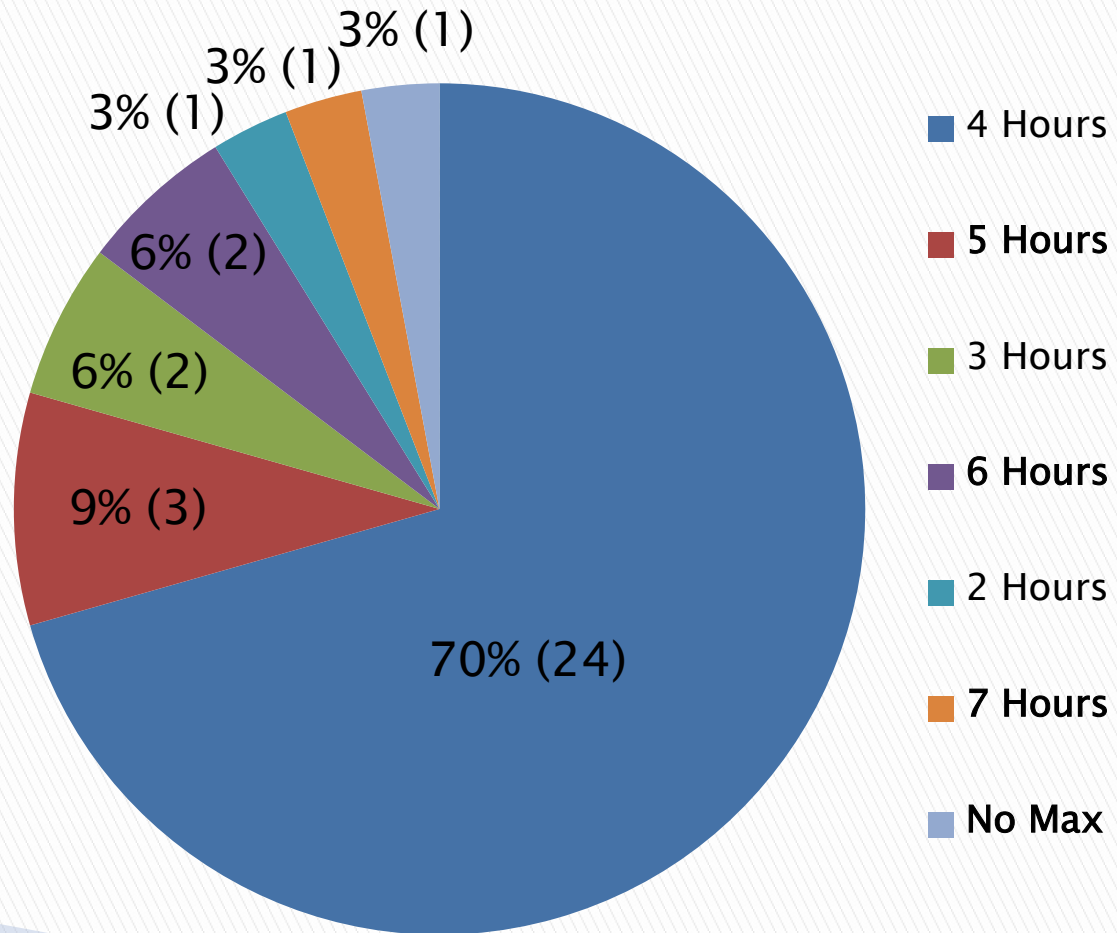
# Preliminary Findings: Sushi Rice

- ▶ Most restaurants (85%, 34) are using TPHC for sushi rice.
  - One (2.5%) restaurant was cold-holding sushi rice.
  - Two (5%) restaurants had HACCP plans for acidifying rice .
    - More complex requirements.
  - Three (7.5%) restaurants left rice at ambient temperature and were not using TPHC or HACCP.

# Preliminary Findings: Sushi Rice

For those using TPHC, what is the maximum amount of time rice can be left out at ambient temperature? (n=34)

\* 20% (7) of the restaurants reported holding rice longer than 4 hours.



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# Preliminary Findings: Sushi Rice

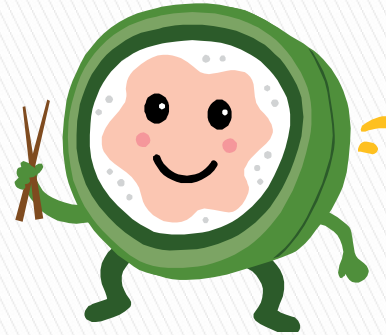
- ▶ For those restaurants using TPHC for rice, only 30% (10) had a written procedure on-site.
- ▶ 58% (20) of the restaurants were marking containers or keeping a log of time to determine when rice needed to be discarded.

# Preliminary Findings: Miscellaneous

- ▶ Bare hand contact during sushi prep was observed in 17.5% (7) of the restaurants.
- ▶ In 25% (10) of the restaurants, at least one fish temperature was above 41°F.
- ▶ In 50% (20) of the restaurants, at least one fish was mislabeled on the menu.
  - Most common: “White Fish” or “White Tuna” = Escolar.



# Questions?



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